Amendments to the Specification:

Please replace paragraph **[0004]** with the following rewritten paragraph:

[0004]

This solenoid valve 100 is normally held in a valve-closed state where the valve sheet 105 is pressed against the valve seat 103 by the spring force of the plate spring 107. When current is supplied to the coil 113, the fixed core 112 is magnetized, attracting the plunger 106 upward against the spring force of the plate spring 107. Accordingly, the valve sheet 105 is separated from the valve seat 103 to provide communication between the inlet passage 102 and the outlet passage 104, allowing control fluid to flow therethrough.

When the amount of current to be applied to the coil 113 is changed, ~~a magnetic attraction force~~ an electromagnetic attraction force will accordingly vary. Thus, the amount of stroke of the plunger 106 is changed to adjust the degree of valve opening between the valve seat 103 and the valve sheet 105. It is accordingly possible to control the flow rate of control fluid to be allowed to flow into a secondary side through the outlet passage 104.

Please replace paragraph **[0007]** with the following rewritten paragraph:

[0007]

The solenoid valve of the present invention is characterized in that a solenoid valve adapted such that a fixed core located in a wound coil and protruding downward from a wound coil, a plunger is supported under the fixed core by a plate spring and holds a valve sheet which is normally retained in contact with a valve seat by spring force of the plate spring, and the valve sheet is separated from the valve seat against the spring force of the plate spring when the coil is energized, wherein the fixed core comprises two parts vertically coupled, an upper one of which is a first fixed core located in a coil bobbin around which the coil is wound and in non-contact with a control fluid, the first fixed core being made of a

material having high magnetic permeability, and a lower one of which is a second fixed core fitted, protruding downward, in the coil bobbin to cover a lower end of the coil bobbin, the second fixed core being made of a material having corrosion resistance to a high-corrosive control fluid.

Further, the solenoid valve of the present invention is characterized in that the first fixed core is made of ~~magnetic soft iron~~ electromagnetic soft iron.

Please replace paragraph **[0008]** with the following rewritten paragraph:

[0008]

The solenoid valve of the present invention having the above structure is normally held in a valve-closed state where the valve sheet is pressed against the valve seat by a restoring force (a spring force) of the plate spring. When current is applied to the coil, the first fixed core made of ~~magnetic soft iron~~ electromagnetic soft iron or the like is magnetized, attracting the plunger upward against the spring force of the plate spring. In the case where the second fixed core is made of a magnetic material such as ferritic stainless steel, the second fixed core can also be magnetized.

When the plunger is moved up and thus the valve sheet is separated from the valve seat, the inlet passage of the valve is brought into communication with the outlet passage to allow the control fluid to flow therethrough. At this time, when the amount of current to be applied to the coil is changed to change the ~~magnetic attraction force~~ electromagnetic attraction force, the stroke amount of the plunger can be changed, adjusting the degree of a valve opening between the valve seat and the valve sheet. This makes it possible to control the flow rate of the control fluid to be allowed to flow therethrough.

Please replace paragraph **[0009]** with the following rewritten paragraph:

[0009]

According to the present invention, the fixed core comprises two separate parts, an upper one of which is the first fixed core, made of a material with high magnetic permeability, located in the coil and in non-contact with the control fluid, and a lower one of which is the second fixed core, made of a material having corrosion resistance to the high-corrosive control fluid, located protruding downward from the coil. Accordingly, the solenoid valve capable of handling a corrosive control fluid and developing an increased attraction force can be provided.

Especially, the first fixed core is made of ~~magnetic soft iron~~ electromagnetic soft iron, so that it can attract the plunger upward by a larger attraction force than conventional one without increasing the current to be applied to the coil. Thus, a larger flow rate of the control fluid can be handled.

Since the first fixed core is in non-contact with the control fluid, further, the first fixed core may be made of ~~a magnetic soft iron~~ an electromagnetic soft iron with low resistance to corrosion. The second fixed core is made of a material superior in corrosion resistance, in particular, ferritic stainless steel is preferable in view of the corrosion resistance and the property of allowing a magnetic flux to pass therethrough.

Please replace paragraph **[00015]** with the following rewritten paragraph:

[0015]

The thus constructed solenoid valve 1 can be incorporated in for example a mass flow controller for controlling a mass flow rate of a control fluid such as organometallic gas (e.g., TMB, TEOS), halogen, and hydrogen halide, which are used in the industries for semiconductor parts, optical elements, magnetic recording devices, and others, or their carrier gasses such as nitrogen, argon, helium, and water vapor or oxygen as needed. Since such

control fluid which will flow in the solenoid valve 1 is high corrosive, accordingly, the portions of the solenoid valve 1 which will come in contact with the control fluid, e.g., the portions forming a flow passage and a valve chamber, need to have resistance to corrosion. For this purpose, the body, plunger, and plate spring of the conventional solenoid valve 100 are made of SUS316L, 317L, Ni alloy, Fe-Co alloy, or the like. Under these circumstances, the fixed core 112 would commonly be made of ferritic stainless steel, SUSXM27, which is resistant to corrosion and allows a magnetic flux to pass therethrough. However, this material is low in magnetic permeability and thus could not provide a sufficient ~~magnetic attraction force~~ electromagnetic attraction force as previously mentioned as the problems to be solved.

Please replace paragraph **[0016]** with the following rewritten paragraph:

[0016] To solve the problems, thus, the solenoid valve 1 in the present embodiment is adapted such that a fixed core comprises two separate parts, upper and lower, that is, the first fixed core 26 and the second fixed core 27. The first fixed core 26 constitutes a large portion of the fixed core and located inside the coil bobbin 28. On the other hand, the second fixed core 27 protruding downward from the coil bobbin 28 is placed within the retainer 22, interposing a fitting member 24 between the outer periphery of the second fixed 27 and the retainer 22. Those second fixed core 27, the retainer 22, and the fitting member 24 are integrally formed by welding. Thus, the first fixed core 26 is in a non-contact state with the control fluid by such second fixed core 27 and others. The first fixed core 26 is made of SUY (~~magnetic soft iron~~ electromagnetic soft iron) or the like, having high magnetic permeability. The second fixed core 27 which will come in contact with the high-corrosive control fluid is made of ferritic stainless steel. The ferritic stainless steel may include a magnetic material having high corrosion resistance, such as SUS444 and conventionally used SUSXM 27. In the case where the first fixed core 26 with high magnetic permeability constitutes the large

portion of the fixed core, the second fixed core 27 does not always need be made of a magnetic material and instead may be made of a non-magnetic substance.

Please replace paragraph **[0017]** with the following rewritten paragraph:

[0017]

The solenoid valve 1 having the above structure is normally in a valve-closed state where the valve sheet 17 is held against the valve seat 13 by the restoring force (spring force) of the plate spring 18. When current is applied to the coil 29, magnetizing the first fixed core 26 (and also the second fixed core 27 if made of a magnetic material), the plunger 16 is attracted upward against the spring force of the plate spring ~~17~~ 18. Then, when the valve sheet 17 is separated from the valve seat 13, the inlet passage 12 is brought into communication with the outlet passage 15, allowing the control fluid to flow into the secondary side through the outlet passage 15. At this time, changing of the current to be applied to the coil 29 causes a change in the ~~magnetic attraction force~~ electromagnetic attraction force. The amount of stroke of the plunger 16 is thus changed to adjust the valve opening degree between the valve seat 13 and the valve sheet 17. This makes it possible to control the flow rate of the control fluid to be allowed to flow out through the outlet passage 15.

Please replace paragraph **[0018]** with the following rewritten paragraph:

[0018]

Comparisons were made in the ~~magnetic attraction force~~ electromagnetic attraction force between the solenoid valve 1 in the present embodiment shown in Fig. 1 and the conventional solenoid valve 100 shown in Fig. 2. First, Fig. 3 shows a graph with a B-H curve of electromagnetic soft iron forming the first fixed core 26 of the solenoid valve 1 in

the present embodiment and a B-H curve of stainless steel forming the fixed core 112 of the conventional solenoid valve 100. From these curves, it is obvious that the electromagnetic soft iron has a higher magnetic flux density B (T) to a magnetic field H (A/m) than the stainless steel has. When the fixed core is made of electromagnetic soft iron, it is accordingly possible to increase the magnetic flux without increasing the amount of current to be applied to the coil. This is conceivably effective in increasing the attraction force for attracting the plunger upward.